general law already demonstrated, and which in these instances came gradually, instead of suddenly, into operation.

141. The following are bodies which acquired no conducting power upon assuming the liquid state:—

Sulphur, phosphorus; iodide of sulphur, per-iodide of tin; orpiment, realgar; glacial acetic acid, mixed rnargaric and oleic acids, artificial camphor; caffeine, sugar, adipocire, stearine of cocoa-nut oil, spermaceti, camphor, naphthaline, resin, gum sandarach, shell lac.

142. Perchloride of tin, chloride of arsenic, and the hydrated chloride of arsenic, being liquids, had no sensible conducting power indicated by the galvanometer, nor were they decomposed.

143. Some of the above substances are sufficiently remarkable as exceptions to the general law governing the former cases. These are orpiment, realgar, acetic acid, artificial camphor, per-iodide of tin, and the chlorides of tin and arsenic. I shall have occasion to refer to these cases in the paper on Electro-chemical Decomposition.

144. Boracic acid was raised to the highest possible temperature by an oxy-hydrogen flame (137), yet it gained no conducting powers sufficient to affect the galvanometer, and underwent no apparent voltaic decomposition. It seemed to be quite as bad a conductor as air. Green bottle-glass, heated in the same manner, did not gain conducting power sensible to the galvanometer. Flint glass, when highly heated, did conduct a little and decompose; and as the proportion of potash or oxide of lead was increased in the glass, the effects were more powerful. Those glasses, consisting of boracic acid on the one hand, and •oxide of lead or potassa on the other, show the assumption of •conducting power upon fusion and the accompanying decomposition very well.

145. I was very anxious to try the general experiment with sulphuric acid, of about specific gravity 1.783, containing that proportion of water which gives it the power of crystallising at 40° Fahr.; but I found it impossible to obtain it so that I could be sure the whole would congeal even at o° Fahr. A ten-thousandth part of water, more or less than necessary, would, upon cooling the whole, cause a portion of uncongealable liquid to separate, and that remaining in the

interstices of the solid
mass, and moistening the planes of division,
would prevent the
•correct observation of the phenomena due to
entire solidifica-
tion and subsequent liquefaction.